REMARKS

Claims 9-11 are pending in the present application, claim 10 having been withdrawn. The Office Action and cited references have been considered. Favorable reconsideration is respectfully requested.

Claims 9 and 11 were rejected under 35 U.S.C. §103 as being unpatentable over Alden (PCT Publication WO2004/041541) in view of Welschlau (U.S Patent 4,587,898) as evidence by Spann (U.S. Patent 6,491,361) and further in view of Heaven et al. (U.S. Patent No. 5,658,432) and Panebianco (WO 2002/084008A2). This rejection is respectfully traversed for the following reasons, and for the reasons set forth in the response filed on June 21, 2007, which is hereby incorporated by reference.

Applicant respectfully requests entry of the Declaration of Norbert Städele submitted herewith, in support of Applicant's arguments. Applicant submits that entry of the Declaration is warranted and appropriate because it could not have been submitted earlier, since at least some of the prior art cited in the final rejection was not previously cited in the first office action.

Within the prior art cited by the Examiner only Welschlau discloses a machine for manufacturing corrugated paper. It must thus be considered to be the closest state of the art.

However, Welschlau does not address the problem of shrinkage and, accordingly, does not disclose anything about determining scaling factors for the printing patterns. In fact, as the machine disclosed by Welschlau uses a rotary printing machine (see column 1, line 15), the scaling of the printing pattern would, if at all, not easily be possible, since a rotary printing machine has to be provided with pre-fabricated printing forms. Consequently, continuously

scaling the printing pattern in an in-line process is not possible with a rotary printing machine.
Declaration of Norbert Städele, paragraph 5 (hereinafter "Städele, ¶ __").

Even more, since the rotary printing machine disclosed by Welschlau consists of several printing stations adjacent to each other and several printing stations in sequence, which must print one over the other (column 4, lines 14 et seq.) the problem to be solved by Welschlau is to adjust the printing stations such that the printed pictures can be printed upon the advancing paper web in proper relationship to one another and over one another (column 4, lines 33 to 37). This is accomplished by shifting of the carrier bands relative to one another. Col. 4, line 66 - col. 5, line 30. Clearly, this can only work in the absence of any shrinkage. If there was any shrinkage the carrier bands with suitably scaled printing forms would also have to be continuously adjusted relative to each other along the direction of the width of the paper web to make printing the same picture several times in proper relationship to one another and over one another possible at all. Welschlau does not address this issue as he does not address the problem of shrinkage. Städele, ¶ 5. Accordingly, the disclosure by Welschlau does not lead a person skilled in the art to the invention according to claim 9.

Furthermore, Welschlau does not disclose the use of a digital printing method. Only with a digital printing method in accordance with the present invention is it possible to flexibly scale a printing pattern with scaling factors, which are determined depending on a continuously monitored, varying degree of shrinkage of the corrugated web being produced. With conventional, previously known printing methods, such as rotary printing, printing forms have to be pre-fabricated rendering a continuous, flexible scaling impossible. In agreement with conventional paper making machinery Welschlau discloses the use of a rotary printing machine.

Welschlau does not teach any reason why one should replace a rotary printing machine by a digital printer. Städele, ¶ 5.

Thus, claim 9 is both novel and non-obvious in view of Welschlau.

None of the prior art cited by the Examiner discloses the determination of scaling factors for printing patterns. Städele, ¶ 6.

In Aldén, the workpiece 1, which is printed and cut into a predefined shape, is *made of* corrugated board, "*which is a laminate material comprising two substantially parallel covering layers of paper material and a core of corrugated fiber board placed between the covering layers, and at least one diffusion layer*" (page 3, lines 8 to 10). Thus, the corrugated board used by Aldén is pre-fabricated. Printing and cutting a prefabricated corrugated board does not constitute *manufacturing of corrugated board*. For the manufacture of corrugated board, several webs of material are needed, at least one of which is corrugated in a fluting unit and subsequently united with at least another web of material to form a web of corrugated board. Aldén does not relate to any of these steps.

Further, Aldén does not use a heater, so there is no shrinkage involved. Spann relates to a digital media cutter that produces pieces of printed media of a pre-defined shape. Thus, Aldén and Spann do not address the issue of shrinkage and do not relate to a method of manufacturing corrugated board. Accordingly, they do not teach anything about determining and applying a scaling factor to a printing pattern to account for shrinkage. Städele, ¶ 6.

Heaven discloses a method for determining cross-machine shrinkage in papermaking machinery. Heaven uses the determined shrinkage profiles to allow for better shrinkage modeling within each grade of paper being produced. See, e.g., col. 4, lines 40-53. Heaven does not concern printing at all. Consequently, Heaven does not disclose determining

scaling factors so that the desired size of a printing pattern will appear on the web, as in the present invention. Furthermore, Heaven does not disclose anything about the determination of a shrinkage factor along the length of the sheet, because it does not need this information to measure defects in the sheets. It only measures along the cross-direction of the web. Städele, ¶ 6.

Panebianco does not concern a machine for manufacturing corrugated board or, indeed, printing at all. As a consequence he does not teach anything about applying a scaling factor to a printing pattern. Städele, ¶ 8.

Thus, claim 9 is both novel and non-obvious in view of a combination of Welschlau with any or all of Aldén, Spann, Heaven and Panebianco.

Heaven discloses an apparatus and method of determining sheet shrinkage in the context of papermaking machinery. However, Heaven does not disclose a corrugating machine which comprises at least two unroll stands for unwinding continuous webs of material or processing equipment for producing at least one web of corrugated board from the webs of material. Thus, Heaven does not teach how to determine sheet shrinkage in a corrugating machine according to the present invention. Städele, ¶¶ 6-7.

Furthermore, since Heaven does not concern printing, determining scaling factors for the printing patterns or, indeed, replacing a conventionally used rotary printer by a digital printing method is not known from Heaven. Städele, ¶¶ 6-7. Thus, even a combination of Welschlau and Heaven would not lead to the use of a digital printing method instead of the rotary printing machine used by Welschlau.

Finally, cutting the sheets of corrugated board in accordance with the shape and size of digitally imprinted patterns is not known from Heaven. Städele, ¶¶ 6-7.

Thus, claim 9 is both novel and non-obvious in view of Aldén and Spann or a combination of Aldén and Spann with Welschlau and Heaven.

Panebianco concerns the shrinkage of textiles during washing. Panebianco teaches how to measure fabric, wash it, and account for shrinkage by increasing the size of the fabric specification (page 7, lines 10-12), then, based on the users inputting of enlarged garment specifications into the device (page 11, lines 7-9), cutting more fabric so that the cut garment matches the original, pre-shrunk, size specified by the designer (page 8, lines 14-19). This is totally unrelated to the present invention. Panebianco does not concern a machine for manufacturing corrugated board or, indeed, printing at all. As a consequence he does not teach anything about applying a scaling factor to a printing pattern to be printed on a sheet of corrugated board. As Panebianco does not disclose a method for the manufacture of sheets of corrugated board nor a corrugating machine nor any printing at all it cannot contribute anything to the solution of the above mentioned problem. It is not clear how a method for determining shrinkage of cloth fabrics due to washing as disclosed by Panebianco could teach a person skilled in the art anything about the manufacture of imprinted sheets of corrugated board. The Office Action asserts that Panebianco discloses using the scaling factors so that the final article is the desired size. The way that Panebianco does this is by changing the size of the cutting instructions given to the machine so that the fabric cut-outs used to form the garment are larger, to account for the shrinkage expected during washing. Panebianco does not suggest that one should, nor provide a way that a person skilled in the art could, modify Alden, Welschlau and Heaven to determine scaling factors so that the desired size of the printing patterns will appear on the web, as provided for in the present invention. Städele, ¶ 8.

In summary, not even a combination of all five documents of the prior art cited by the examiner, would lead to the object of claim 9. Thus, claim 9 is patentable over Aldén in view of Welschlau as evidenced by Spann, and further in view of Heaven et al. and Panebianco.

In view of the above amendment and remarks, Applicant respectfully requests reconsideration and withdrawal of the outstanding rejections of record. Applicant submits that the application is in condition for allowance and early notice to the effect is most earnestly solicited.

If the Examiner has any questions, he is invited to contact the undersigned at 202-628-5197.

Respectfully submitted,

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